

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VII (NEW) EXAMINATION - WINTER 2017** 

Subject Code: 2170701 Date:02/11/2017

Subject Name: Complier Design

Time: 10:30 AM TO 01:00 PM Total Marks: 70

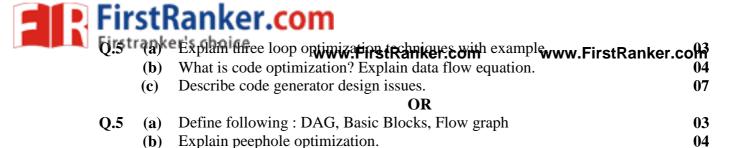
**Instructions:** 

1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

			MARKS
Q.1	(a)	What is the difference between compiler and interpreter?	03
_	<b>(b)</b>	Explain analysis phase of the source program with example.	04
	(c)	Write an algorithm for Thompson's construction method. Apply the algorithm to construct NFA for following regular expression. (a   b)*abb.	07
Q.2	(a)	What is a pass in a compiler? What is the effect of reducing the number of passes?	03
	<b>(b)</b>	Explain error recovery strategies used by parser.	04
	(c)	What is operator grammar? Generate precedence function table for following grammar.  E -> EAE   id	07
		A -> +   *	
	(c)	OR  Define handle and handle pruning. Explain the stack implementation of	07
	(C)	shift reduce parser with the help of example.	07
Q.3	(a)	Give the translation scheme that converts infix to postfix notation.	03
		Generate the annotated parse tree for input string 3-5+4.	
	<b>(b)</b>	Explain buffer pairs and sentinels.	04
	<b>(c)</b>	Check given grammar is LL(1) but not SLR(1). S -> AaAb   BbBa	07
		A -> €	
		B -> €	
OR			
<b>Q.3</b>	<b>(a)</b>	Write a rule of Left factoring a grammar and give example.	03
	<b>(b)</b>	Explain role of lexical analyzer.	04
	<b>(c)</b>	Define syntax tree. What is s-attributed definition? Explain construction of	07
$\Omega A$	(a)	syntax tree for the expression a-4+c using SDD.  Translate the arithmetic expression a*-(b+c) into	03
<b>Q.4</b>	(a)	1. Syntax tree	03
		2. Postfix notation	
		3. Three address code	
	<b>(b)</b>	Write Syntax Directed Definition to produce three address code for the	04
		expression containing the operators := , + , - (unary minus), () and id.	
	<b>(c)</b>	What is activation record? Explain stack allocation of activation records	07
using example.  OR			
Q.4	(a)	What is activation tree?	03
<b>~··</b>	(b)	Explain parameter passing techniques for procedure.	04
	(c)	What is importance of intermediate code? Discuss various representations	07
		of three address code using the given expression. $a = b * -c + b * -c$ .	



Explain function preserving transformations with example.

(c)

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**07**